iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** V **Month of publication:** May 2026

DOI: https://doi.org/10.22214/ijraset.2026.82189

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue V May 2026- Available at www.ijraset.com

Multisensory Experience in Dining Spaces Designing Through Light, Smell, Sound, and Texture in Restaurants

Ar. Aman Soni, Dr. Ramanjyot Shrivastava
[1]*M.Arch.SALSchoolofArchitecture*
[2]*Principal, SAL School of Architecture*

Abstract: ***Dining spaces todayfocus on experience rather than just food. This research explores how multisensory design- engaging sight, sound, smell, and touch- enhances user comfort, emotions, and overall dining satisfaction. Restaurant interiors now play a key role in shaping user behavior and memory. Elements such as lighting, color, sound, aroma, materials, and spatial layout work together to create atmosphere. Whenthese elementsare balancedandintegrated,theyimprove comfort,influencemood,andencourage longerstays.Thestudyhighlightsthatsuccessfuldiningenvironmentsmaintainharmonybetweensensory elements, consider local context, and prioritize user experience. It concludes with design strategies that help create spaces that are functional, emotionally engaging, and memorable.***

Keywords: Multisensory Design, Spatial Sequencing, Sensory Integration, Dining Environment, Biophilic Design, User Behavior, Hospitality Interior and Architecture.

I. INTRODUCTION

DiningspacesinurbanIndia have evolvedintosocialandexperientialenvironments.People nowchoose restaurants based on ambiance and emotional connection, not just food. Multisensory design plays a central role in shaping this experience. Visual elements (lighting and color), sound (music), smell (aroma),andtouch(materialsandcomfort) collectivelyinfluenceperception, mood,andmemory. Awell-designedspacefeelscohesiveandcomfortable,whilepoorintegrationcancreateconfusionordiscomfort. This study aims to understand how these sensory elements combine to create meaningful dining experiences.

II. EVOLUTION OF DINING SPACES: FROMFUNCTION TO EXPERIENCE

Earlier,restaurantdesignfocusedonefficiency,seatingcapacity,andsmoothoperation.Today,thefocus has shifted toward creating immersive and memorable experiences. Restaurants are not just about food and service; they are about the overall experience they offer. In urban India, dining has become an important social and cultural activity. People visit restaurants not onlyto eat but also to spend time with others,celebrateoccasions,andexpresstheirlifestyleandidentity. So,humanperceptionnowisbasedon sensory integration, where all senses work together rather than independently. For example:

- Lightingcaninfluence food perception
- Music affectsmood
- Materialsimpactcomfort

Thisintegrationformstheatmosphere,whichdefineshowaspacefeels.Movement,touch,andinteraction with the environment further shape the user experience.

III. THEORETICAL FRAMEWORK OF MULTISENSORY DESIGN

Inthepast,restaurantdesignmainlyfocusedonbasicneedssuchasefficientlayout,easymovement,andmaximumseatingcapacity.Thegoalwa stoservemorepeoplequicklyandfunctionsmoothly.However,overtime,withincreasingcompetitionandchanginguserexpectations,thisapp roachhasshifted.Human experienceofspaceisnaturallybasedonmultiplesensesworkingtogether.Whenapersonentersaspace, the brain does not process what they see, hear, smell, or touch separately. Instead, it combines all these sensoryinputstocreateone completeunderstandingoftheenvironment.Thisprocessisknownassensory integration.

©IJRASET: All Rights are Reserved

Interior and architectural design is rooted in the understanding that spaces are experienced through a combinationofhumansensesratherthanvisualperceptionalone.Thisapproachfocusesonhowelements such as light, material, sound, scent, and thermal conditions collectively influence human emotions, behavior, and spatial experience. It advocates for designing environments that engage all senses simultaneously through strategies like sensory layering, spatial sequencing, and zoning, creating immersiveandemotionallyresonantspaces.Inpractice,thisresultsinenvironmentsthatenhancecomfort, well-being, and memory by integrating natural elements, controlling microclimate, and orchestrating sensory interactions, ultimately transforming architecture and interiors into holistic, human-centred experiential systems rather than purely visual compositions. A well-designed restaurant considers how eachelementconnectswiththeotherstocreateasmooth,comfortable,andmeaningfulexperienceforthe user. Elements such as interiors, lighting, music, and choice of materials are carefully planned and combined to shape the overall atmosphere. All these aspects work together to influence how people feel and interact within the space.

IV. SENSORY COMPONENTS IN DINING SPACES

The experience of a dining space is created through different senses working together. Each sense plays an important role, but it is their combination that makes the space feel comfortable, enjoyable, and memorable.

A. WhatWeSee(Light,Colour,andSpace)

Thefirstimpressionofarestaurantcomesfromwhatwesee.Lighting,color,andtheoverallarrangementofthespacehelpsetthemoodandguide howpeoplemovearound.Soft,warmlightingcreatesacalmandcozyfeeling,whilebrighterlightingmakesthespacefeelmoreactive.Colorsals oaffectemotions-some feel warm and inviting, while others feel cool and relaxing. The way furniture and spaces are arranged helps people understand where to sit and move easily.

B. WhatWeSmell(SmellandAroma)

Smellhasastrongconnectiontoemotionsandmemory.In restaurants,thesmelloffoodisveryimportant asitcanmakepeoplefeelhungry andcomfortable.Someplacesalsouselightbackgroundscentstocreate a unique feeling, but it is important that these smells are not too strong. A balanced smell can make the space more pleasant and memorable.

C. WhatWe Hear(SoundandMusic)

Sound plays a big role in how people feel in a space. Music helps set the mood-slow music creates a relaxed feeling, while faster music makes the space feel lively. At the same time, too much noise can be uncomfortable.Propercontrolofsoundhelpspeopletalkeasilyandenjoytheirtimewithout disturbance.

D. WhatWe Feel (TouchandComfort)

The sense of touch comes from materials, furniture, and overall comfort. Different textures-like smooth, rough, soft, or hard-add variety and character to the space. Comfortable seating, good materials, and a pleasanttemperature make people feelrelaxed.Whenpeople are physicallycomfortable,theyenjoytheir experience more and tend to stay longer.

All these elements are connected and should be designed together. When balanced well, they create a dining space that feels natural and wholesome.

V. SENSORY INTEGRATION AND TEMPORAL EXPERIENCE

The effectiveness of multisensorydesign works efficient when instead of treating each sense separately, each element should support another to create one smooth and comfortable experience.

Adiningexperiencealsohappensstepbystepovertime,andeachstagecreatesadifferentfeelingforthe user:

- Entry–Thefirstimpressioncreatescuriosityandbuilds excitement.
- Seating–Theuserstartstorelax andfeelcomfortable.
- Dining–The mainexperience,where food,surroundings,andmoodcome together.
- Exit–Thefinalimpressionthatstaysintheuser’smemory.

By carefully designing each of these stages, restaurants can create a better overall experience. When people feel comfortableandenjoyeach moment,theyare morelikelyto rememberthe placeand want to visit again.

VI. DESIGN STRATEGIES

Multisensory and climate-responsive design in dining spaces can be achieved through careful spatial zoningandsequencing,wheretheuserjourneytransitionssmoothlyfromentrytodiningandexit,creating a layered experiential flow. Microclimate strategies such as courtyards, natural ventilation, shading devices, and thermal mass help maintain indoor comfort while reducing dependence on mechanical systems. The integration of sensory elements should be balanced to enhance user experience without causing overload.

Biophilic design plays an important role by incorporating natural elements such as vegetation, water features, and daylight to improve well-being and create a connection with nature. Layered lighting strategiesusingambient,task,andaccentlighting helpdefinemoodandspatialhierarchy, whilematerial selectionfocusingonnatural,local,andtexturedsurfacesenhancestactilecomfortandculturalrelevance. Acoustic control through soft materials and spatial zoning ensures a comfortable auditory environment, supporting conversation and relaxation.

Additionally, integrating cultural and contextual elements rooted in local architecture and materials strengthens the identity of the space. Flexible planning allows adaptability for different user groups and functions, while sustainable approaches such as passive cooling, energy-efficient systems, and local sourcingcontributetolong-termenvironmentalperformance. Together, thesestrategiescreateacohesive, comfortable, and immersive dining environment that responds to both user experience and climatic conditions.

Overall, a successful dining space is onewhere all these elements are well-balanced and connected. The design should match the theme of the restaurant, the type of users, and the local context.

VII. CHALLENGES

Whilemultisensorydesignhasthepotentialtocreaterichandengagingdiningexperiences,italsocomes with several practical challenges.

1) One of the main issues is sensory overload. When too many sensory elements-such as lighting, sound, smell, and textures-are used at once, it can overwhelm users, causing discomfort, fatigue, andareducedoverallexperience. Achievingtherightbalancerequirescarefulplanningandaclear understanding of how people perceive different stimuli.
2) Maintenance and operational complexity are another challenge. Lighting systems, scent diffusers, sound treatments, and material finishes need regular care to function as intended. In busy restaurants, wear and tear on furniture and surfaces can reduce the effectiveness of the sensory design over time.
3) Budget constraints also play an important role. High-quality materials, advanced lighting, and acoustic solutions often increase costs, so designers need creative approaches to deliver a rich sensory experience within financial limits.
4) In addition, diverse user preferences andcultural expectations in India make it difficult to design a space that appeals to everyone. A design that feels lively and exciting to one group may feel overwhelming to another.
5) Environmentalfactors, such asclimate, urban noise, andlimitedspace,furthercomplicate design decisions, particularly in dense cities.
6) Finally, the lack of standardized guidelines for multisensory design means much of the process depends on the designer's experience, intuition, and experimentation.

VIII. CONCLUSION

The key to successful multisensory design lies in balance—ensuring that all sensory elements work together harmoniously rather than competing with one another.

In urban India, designingfor the sensesrequiresconsideration oflocalclimate, culture, andlifestyle. For example, temperature, airflow, and material choices affect comfort, while cultural preferences shape color palettes, textures, and sounds. A space that considers these factors feels natural, welcoming, and enjoyable for its users.

Beyond aesthetics and comfort, multisensory design also supports emotional engagement. Subtle use of light, sound, aroma, and tactile experiences can evoke anticipation, relaxation, or excitement, making dining not just a functional activity but a memorable experience. Thoughtful sequencing of the user journey—from entry to seating, dining, and exit—can enhance this effect, creating lasting impressions and positive associations.

Futurediningspacesshouldfocusonuser-centred,context-aware,andenvironmentallyconsciousdesign, integrating sensory experiences with sustainability and micro-climatic strategies. By prioritizing these principles,restaurantscancreateengagingspaces wheresensorydesignisnotjustanadditionbutacentral element of the overall experience.

©IJRASET: All Rights are Reserved

BIBLIOGRAPHY BOOKS

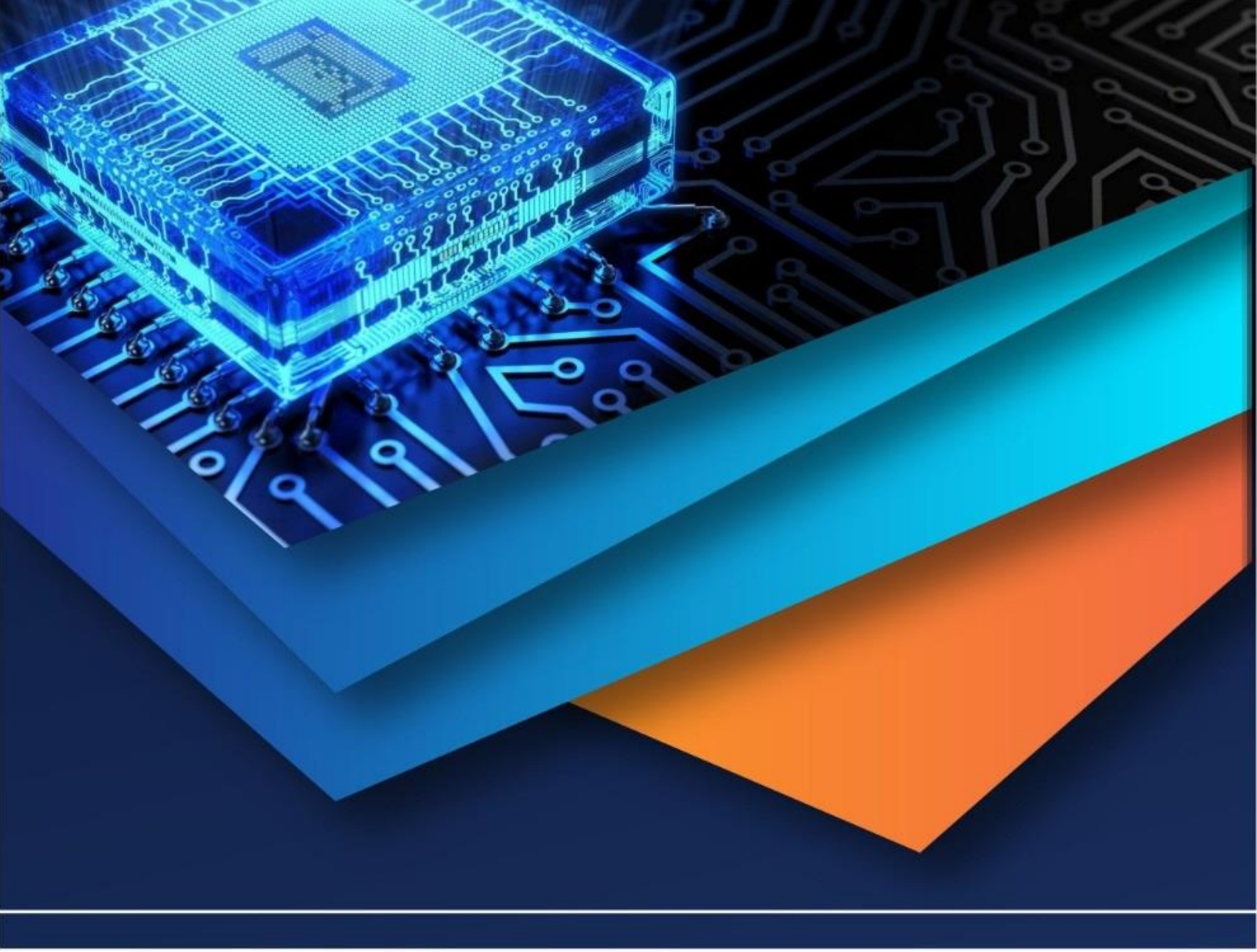
[1] Pallasmaa,Juhani. *TheEyesoftheSkin:ArchitectureandtheSenses*.Chichester:Wiley, 2012.
[2] Zumthor,Peter.*Atmospheres:ArchitecturalEnvironments,SurroundingObjects*.Basel:Birkhäuser, 2006.
[3] Holl,Steven,Pallasmaa,Juhani,andPérez-Gómez,Alberto.*QuestionsofPerception:Phenomenology of Architecture*. San Francisco: William Stout Publishers, 2006.
[4] Spence,Charles.*Gastrophysics:TheNewScienceofEating*.London:Viking,2017. Lawson, Bryan. *The Language of Space*. Oxford: Architectural Press, 2001.
[5] Kellert,StephenR.,Heerwagen,Judith,andMador,Martin. *BiophilicDesign:TheTheory,Scienceand Practice of Bringing Buildings to Life*. Hoboken: Wiley, 2011.
[6] Ching,FrancisD.K.*InteriorDesignIllustrated*.Hoboken:Wiley, 2014.

JournalArticles/ Papers

[7] Bitner,MaryJo.“Servicescapes:TheImpactofPhysicalSurroundingsonCustomersandEmployees.” *Journal of Marketing*, 56(2), 1992, pp. 57–71.
[8] Krishna,Aradhna.“AnIntegrativeReviewofSensoryMarketing:EngagingtheSensestoAffect Perception.” *Journal of Consumer Psychology*, 22(3), 2012, pp. 332–351.
[9] Spence,Charles.“MultisensoryDesignin HospitalityEnvironments.”*Flavour*,4(1),2015,pp. 1–7.
[10] Mehrabian,Albert,andRussell,JamesA.“AnApproachtoEnvironmentalPsychology.”MITPress, 1974. *(Referenced for theoretical framework use)*
[11] Ulrich,RogerS.“ViewThroughaWindowMayInfluenceRecoveryfromSurgery.” *Science*, 224(4647), 1984, pp. 420–421.

OnlineSources

[12] ArchDaily.“TheRoleofSensoryDesigninArchitecture.” https://www.archdaily.com
[13] Dezeen.“RestaurantInteriorandHospitalityDesignProjects.” https://www.dezeen.com
[14] Designboom.“RestaurantandInteriorDesignCaseStudies.” https://www.designboom.com
[15] Restaurant & Bar Design Awards. https://www.restaurantandbardesignawards.com



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)